The Scientific Uplink System for SIRTF - Design to Implementation

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The Space Infrared Telescope Facility (SIRTF) is the last of NASA's Great Observatory missions, schedule for launch in July 2002. SIRTF will perform an extended series of science observations at wavelengths ranging from 20 to 160 microns for five years or more. The California Institute of Technology is the home for the SIRTF Science Center (SSC). The SSC is responsible for supporting the scientific community with observation design and scheduling, and production and archiving of data products.

The SIRTF ground segment design is driven by the requirement to provide strong support to the entire astronomical community, while automating several functions in order to save operations costs. In the past year, the ground segment software has evolved from an early development system into an operational system, currently supporting both SIRTF Legacy Teams and Guarantee Time Observers.

This paper will describe the Uplink Segment software developed at the SIRTF Science Center. The Uplink software architecture is split into three major parts:

The SIRTF Observation Planning Tool (SPOT) is a front end Java application deployed at an astronomer's institution, providing the capabilities for the user to visualize, create, and edit observations.

The Astronomical Observation Request / Instrument Engineering Request Resource Estimator (AIRE) is the Java based application which calculates observation durations, data volumes, and other meta data used for scheduling and processing observation requests.

The Science Operations Application Server (SOAS) software, a Weblogic™ based middleware component, which brokers all transactions between these client and server tools, and the Science Operations Database.

In addition to a software description, this paper will address the remaining development work to be completed this winter, and give a brief list of lesson's learned during the transition from system design to system implementation.